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UNITED STATES PATENT APPLICATION

of

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for

FUNNEL FOR RELOADING CARTRIDGES

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Title Of Invention

FUNNEL FOR RELOADING CARTRIDGES

Field Of The Invention

[0001] The present invention relates to a funnel for reloading firearm cartridges with powder.

Background Of The Invention

[0002] Conventional powder funnels for reloading of used or new cartridges generally include a conical funnel portion for loading black powder therein, and an annular spout portion extending downwards from the conical tip of the funnel portion for guiding the black powder to the cartridge case to be loaded. The spout portion of such a known powder funnel typically has an outer diameter designed to fit within the interior surface of the distal tip portion of the hollow cartridge case in order to facilitate reloading of the black powder without spilling the powder. To meet various sizes of cartridge cases, users of firearms often need many powder funnels with different spout sizes to fit the cartridge cases.

[0003] The amount of black powder to be loaded must be accurately measured before the user inserts a conventional funnel to the cartridge case for reloading. Thus, a separate pan or a measuring vial is typically required to retain the accurate amount of black powder prior to pouring the black powder within the funnel.

Summary Of The Invention

[0004] Accordingly, the present invention is directed to an improved powder funnel, the funnel having a funnel spout with the inner diameter of the spout sized and configured to meet the outer contour of the tip portion of various cartridge cases commercially available. The present invention is also directed to an improved powder funnel having a funnel spout connected transversely to a side of a pan or container portion of the powder funnel such that, when the user tilt the funnel with a cartridge case inserted within the funnel spout, powder can flow or transfer from the interior of the container portion of the funnel to the cartridge case through the spout. The present invention is also directed to a method of reloading a cartridge case using the funnel of the invention.

[0005] According to one preferred embodiment of the present invention, the funnel for loading or reloading of cartridges comprises: a container including a bottom portion and a side portion, the bottom and side portions of the container defining an area for receiving powder or shots therein; and, a funnel member including a funnel portion and a spout portion, the spout portion extending serially from the funnel portion, the funnel portion and the spout portion extending generally transversely from the side portion of the container such that powder or shots received within the container is able to flow out of the funnel when the funnel is inclined to a predetermined degree. Preferably, the funnel portion of the funnel member has, at least partially, a frusto-conical shape, and the spout portion of the funnel member has a conical shape with an inner diameter increased at the tip thereof.

[0006] According to another preferred embodiment of the present invention, the funnel for loading or reloading of cartridges comprises: a container including a side portion, and a frusto-conical bottom portion extending downwards from the side portion, the side portion and the bottom

portion defining an area for receiving powder or shots therein; and, a hollow spout connected at a frusto-conical tip of the bottom portion of the container, the spout having a generally conical inner surface configured to fittingly receive a tip portion of a cartridge case within the inner surface thereof.

[0007] According to another aspect of the present invention, a method of reloading a cartridge case with powder is provided, the method comprising the steps of: providing a funnel including a container portion and a hollow spout portion in which the spout portion defines a generally conical inner surface configured to fittingly receive a tip portion of a cartridge case within the inner surface thereof; filling predetermined amount of powder within the funnel; inserting the tip portion of a cartridge case into the inner surface of the spout portion of the funnel; and, tilting the funnel and the cartridge case to a degree to transfer the powder within the container portion of the funnel to the cartridge case through the spout portion of the funnel. Said filling of the predetermined amount of powder is preferably performed while putting the funnel on an electronic scale.

Brief Description Of The Drawings

[0008] FIG. 1 is a top view of a powder funnel constructed in accordance with the present invention.

[0009] FIG. 2 is a top view illustrating the funnel of FIG. 1 in which accurately measured black powder is contained within the pan portion of the funnel.

[00010] FIG. 3 is a view illustrating a reloading method of a cartridge case by the funnel of FIG. 1 with black powder contained therein.

[00011] FIG. 4 is a front view of a powder funnel constructed in accordance with another embodiment of the invention.

[00012] FIG. 5 is a top view of the funnel of FIG. 4.

Detailed Description Of The Drawings

[00013] Referring now to the drawings, FIGS. 1-3 depict a funnel constructed according to one preferable embodiment of the present invention. Funnel 10 of the invention consists generally of a pan or container 12 and a funnel member 14.

[00014] The container 12 includes a base or bottom portion 16 having a generally flat shape, and a side portion 18 extending from the base portion 16 to form a container area 19 thereby for receiving a substance (e.g., firearm powder or shots) therein. The base portion 16 and the side portion 18 together define a generally pan-like shape with the side portion 18 having a concave or slope inner surface along the periphery thereof. However, other shapes can be used as long as they can provide an adequate container area and a smooth surface facilitating pouring of powder-like materials when the container 12 is tilted substantially.

[00015] The bottom surface of the base portion 16 is configured to make the funnel 10 to sit on a horizontal surface. For example, the funnel 10 can stably sit on an electronic scale while pouring black powder within the container 12 and measuring the weight at the same time. Preferably, two handle portions 20 and 22 are disposed at opposite radial locations of the upper portions of the side portion 18. The handle portion 20 is generally for the right-handed users, and the handle portion 22 is for left-handed users. However, the handle portion 22 can be gripped to secure (i.e., stabilize) the funnel 10 by the right-handed user when the person pours black powder into

the funnel 10. Similarly, the handle portion 20 can be gripped to secure (i.e., stabilize) the funnel 10 by the left-handed user when the person pours black powder into the funnel 10.

[00016] The funnel member 14 includes a funnel portion 24, and a spout portion 26 serially (i.e., axially) extending from the distal tip of the funnel portion 24. The funnel portion 24 is combined with the side portion 18 of the container 12 with a lower half of the funnel portion merged with the side portion 18 in a manner such that a longitudinal axis 28, defined by the funnel portion 24 and the spout 26, is horizontally oriented. However, the orientation of the spout 26 can be set differently, that is, the spout 26 can be attached to the funnel portion 24 with a tilted orientation other than horizontally.

[00017] The spout 26 has a conical inner surface designed and sized to fit with outer tip portions of various cartridge cases available in commerce. The inner diameter at the neck portion 30 of the spout 26 is preferably about 4 to 10 mm, and the inner diameter of the distal tip of the spout 26 is preferably about 8 to 20 mm. However, other dimensions are also available depending on the type of the cartridge. The inner space of the funnel portion 24 communicates with the inner space of the spout 26.

[00018] The funnel 10 is preferably formed of a plastic material or light-weight metallic material. It is also preferable to apply an anti-static treatment thereon to the funnel 10 to facilitate transfer of powder. Having the above-described structure and configuration of the funnel 10, powder received within the container 12 can be easily transferred to the cartridge case (such as case 32 in FIG. 3) attached to the spout 26 via the spout when the funnel 10 is tilted counterclock-wise to a certain degree.

[00019] Referring to FIGS. 2 and 3, an inventive method of a cartridge case is described herein. The user prepares in advance one or a plurality of

cartridge cases 32 in accordance with a standard operating procedure of the product. Funnel 10, or a funnel with a similar configuration, is now placed on a suitable precision electronic scale (not shown). Then, accurate amount of black powder or shots 34 is filled within the container area 19 of the funnel 10 with the guidance of a weight display of the electronic scale. Amount of black powder to be filled is dependent upon the type and specification of the cartridge, and many reloading manuals are available for guiding the reloading procedures. Now, a distal end of the cartridge case 32 prepared before is carefully inserted within the spout 26 until the two fit securely without having a gap in-between. The user, then, tilts the funnel 10 with the cartridge case connected thereto in a counterclock-wise direction to a substantial degree, for example to 90° relative to the horizon, until the whole powder 34 contained in the funnel 10 transfers to the cartridge case 32 via the funnel spout 26 of the funnel 10. See FIG. 3. This completes the reloading of the cartridge case 32, and the user proceeds subsequent proceedings for reloading of a cartridge in accordance with the reloading manuals.

[00020] Referring to FIGS. 4 and 5, another preferred embodiment of the funnel of the present invention is described herein. Funnel 50 of the invention consists generally of a generally funnel-like container 52, and a hollow spout 54 axially connected to the container 52.

[00021] The container 52 includes a side portion 56 defining the outer and upper boundary of the container 52, for example, defining a circular shape. The container 52 also includes a generally frusto-conically shaped base (or bottom) portion 58, extending from the base portion 16 to form a container area 19 thereby for receiving a substance (e.g., firearm powder or shots) therein. The interior space of the base portion 58 and the side portion 56 communicates with each other.

[00022] Preferably, suitably configured, two handle portions 60 and 62 are disposed at opposite radial locations of the side portion 56. The handle portion 60 is generally for the right-handed users, and the handle portion 22 is for left-handed users. However, the handle portion 62 can be gripped to secure (i.e., stabilize) the funnel 50 by the right-handed user when the person pours black powder into the funnel 50. Similarly, the handle portion 60 can be gripped to secure (i.e., stabilize) the funnel 50 by the left-handed user when the person pours black powder into the funnel 50. The handle portions 60 and 62 may be provided with holes 64 for handling purposes.

[00023] The hollow spout 54 serially (i.e., axially) extends downwards from the distal tip of the base portion 58 of the container 52. However, the orientation of the spout 54 can be set differently, that is, the spout 54 can be attached to the tip of the base portion 58 with a tilted orientation other than vertically.

[00024] The spout 54 has a conical inner surface designed and sized to fit with outer tip portions of various cartridge cases available in commerce. The inner diameter at the neck portion 66 of the spout 54 is preferably about 4 to 10 mm, and the inner diameter of the distal tip of the spout 54 is preferably about 8 to 20 mm. However, other dimensions are also available depending on the type of the cartridge for reloading. The inner space of the funnel-like container 52 communicates with the inner space of the spout 54.

[00025] Unlike conventional funnels for reloading of cartridges which have a straight hollow spout for inserting within the opening of such a cartridge case, the spout 54 (and also 26 in FIG. 1) of the funnel 50 or 10 of the present invention has a conical inner diameter as discussed above, thus allowing connection of a wide variety of different cartridge cases available in commerce. If the dimension of the particular cartridge case 32 for reloading is somewhat great, the conical tip of the cartridge case is inserted to the spout

54 (or 26) somewhat shallowly. If the dimension of the particular cartridge case 32 for reloading is somewhat small, the conical tip of the cartridge case is inserted to the spout 54 (or 26) somewhat deeply.

[00026] The funnel 50 is preferably formed of a plastic material or a light-weight metallic material. It is also preferable to apply an anti-static treatment thereon to the funnel 50 to facilitate transfer of powder.

[00027] Loading methods of the funnel 50 is different from the funnel 10 described above, but somewhat similar to that of conventional funnels. One method is described herein. The user prepares in advance one or a plurality of cartridge cases 32 in accordance with a standard operating procedure of the product. Funnel 50, or a funnel with a similar configuration, is provided in accordance with the invention described above. Now, a distal end of the cartridge case 32 prepared before is carefully inserted within the spout 54 of the funnel until they fit securely without having a gap in-between. Then, accurate amount of black powder or shots 34 is filled within the container area of a separate container or measuring vial (not shown), preferably with the guidance of a weight display of an electronic scale. Amount of black powder to be filled is dependent upon the type and specification of the cartridge, and many reloading manuals are available for guiding the reloading procedures. Now, the user pours the powder in the separate container into the funnel 50 with the cartridge case 32 attached thereto, until the whole powder 34 contained in the separate container or vial transfers to the cartridge case 32 via the funnel spout 54 of the funnel 50. This completes the reloading of the cartridge case 32, and the user proceeds subsequent proceedings for reloading of a cartridge in accordance with the reloading manuals commercially available.

[00028] Although the invention has been described with reference to a particular arrangement of parts, features and the like, these are not intended

to exhaust all possible arrangements or features, and indeed many other modification and variation will be ascertainable to those of skill in the art without departing from the spirit and scope of the present invention as defined by the following claims.